

157

SVKM's NMIMS
MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Programme: B. Tech (IT)

Year: IV Semester: VII

Academic Year: 2019-20

Subject: Software Project Management

Date: 11 November 2019

Marks: 70

Time: 2.00 pm - 5.00 pm

Durations: 3 (hrs)

No. of Pages: 3

Final Examination (2019-20)

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

- 1) Question No. 1 is compulsory.
- 2) Out of remaining questions, attempt any 4 questions.
- 3) In all 5 questions to be attempted.
- 4) All questions carry equal marks.
- 5) Answer to each new question to be started on a fresh page.
- 6) Figures in brackets on the right hand side indicate full marks.
- 7) Assume suitable data if necessary.

- Q1 A Create an activity network diagram using the following details. Calculate the earliest and latest start and end dates and the float associated with each activity. (5)

Activity	Duration (in weeks)	Depends on	Resource type
Requirement (A)	1		SA
Database design (B)	1	A	SD
Software design (C)	2	A	SD
Database creation (D)	2	B	SC
Code-Module1 (E)	2	C	SC
Code-Module2 (F)	1	C	SC
Code-Module3 (G)	3	C	SC
Integration and Testing (H)	3	D, E, F, G	ST

- B For the above project, (5)
- a. Identify the critical path.
 - b. What is the minimum number of each type of resource will need to be recruited for the project as a whole if the earliest finish date is to be preserved?
- C (4)
- a. What impact would there be on the project if there were only two coders?
 - b. Assuming that the minimum number of coders were employed for the duration of the project, what would be the % utilization of the coder?

- 2 A Explain parametric models (COCOMO and Function Points) in estimation. What are some of the advantages and disadvantages of these methods? List down any TWO advantages of FP (function point) measure of size over LOC (Lines of Code) measure of size. (7)
- B Identify the important differences in the characteristics of the software development projects that are being undertaken now with those that were undertaken several decades back. What can be the possible reasons for the drastic shrinkage of the project durations from multi-year to a couple of months now? (7)
- Q3 A The following are the cash flows for three projects (P1, P2, P3) over a period of 5 years. (7)
- Calculate Net profit, Payback period, Return on Investment (ROI)
 - Calculate Net Present Value (NPV) at 10% Discount Rate. Explain which of the three projects can be selected and why.
 - Explain why discounted cash flow techniques provide better criteria for project selection than net profit or return on investment.

Year	Cashflow (in Rupees)		
	P1	P2	P3
0	200,000	1,000,000	200,000
1	20,000	200,000	60,000
2	20,000	200,000	60,000
3	20,000	200,000	60,000
4	40,000	200,000	60,000
5	200,000	300,000	60,000

o $ROI = (\text{Average annual profit} / \text{Total investments}) \times 100$

the delivery date by 2 weeks. And the client will put a penalty of ₹50,000 per week delay.

- a. What is the risk exposure if the member leaves the project midway?
- b. To counter the risk, you will hire a temporary member for 4 weeks at a salary of ₹20,000 per week. Would it be a good idea to employ the temporary member?

Q5 A Describe Maslow's Hierarchy of needs. How does it relate to Information Technology projects? (7)

B What problems are you likely to face if you are developing several versions of the same software product according to a client's request, and you are not using any configuration management tools? (7)

Q6 A a) What is meant by software configuration management? How can you manage software configuration (only mention the names of the principal activities involved)? (7)

b) What is a Critical Path (CP) in an activity network? Why it is important to pay attention to Critical Path?

B Explain the concept of virtual project team in an organization along with its benefits and limitations. (7)

Q7 Briefly explain the following:

A a. Bottom-up versus top-down estimating (7)
b. Product Breakdown Structure (PBS) vs Work Breakdown Structure (WBS)

B a. Cash flow forecasting
b. Software project risks (any TWO) and techniques to reduce them (7)